

RHIC 2002 BPM Plans

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- 112 Bunches
- Radiation Issues
- Recovery/Diagnostic Tools
- ADO Stability/Features
- Managers/Data Integration
- Million Turn System
- Bunch/Bucket Select
- Timing Setup (Autotiming)
- **112 Bunches** are not a problem ($213 \text{ ns} \Rightarrow 106 \text{ ns spacing}$) ✓
DX BPMs worked with narrower timing constraints (c. 50 ns)
Power deposition from 112 design bunches okay
To Do: *Attenuator heatsinks to cryostat at feedthroughs*
- **Radiation Issues** are definitely a problem ✗
50+ DSP RAM/SRAM failures, arcs 3/9/11, no support bldg failures
Failure modes gradual but fatal over a few days
Fix is to replace DSP, costly and manpower-intensive
To Do: *\Rightarrow Cable sectors 3/9/11 to alcoves (lots of heliax cabling work)*

RHIC 2002 BPM Plans: Stability

- **Recovery/Diagnostic Tools**

Much babysitting of system still required (nearly 1 FTE!, thanks Phil!)

Recovery and diagnostic tools are very expert, very piecemeal

ADO/IFE bugs often led to FEC resets (Nov 2001: 181/341!)

To Do: *Automate system checks/recovery/failure logging, alarming?*

- **ADO Stability/Features**

Mode bug responsible for IFE resets is being corrected

Low-level timing access for gate delays/trigger delays

To Do: *More IFE, low-level integration parameters for diagnosis/logs*

- **Managers/Data Integration**

Some confusion, inefficiency with old RhicOrbitManager

New RhicBpmManager was running, archiving ramp data through run

To Do: *Eliminate old manager, integrate new manager*

To Do: *Logging of ramping orbit statistics (c.f. Vadim's OrbStat)*

RHIC 2002 BPM Plans: Functionality

- **Million Turn System**

All hardware in hand, requires integration/coding/testing
Upgrade 8 planes (2 per plane per ring) in support building
⇒ Requires prioritization and support to succeed
To Do: *Integration/coding/testing*

- **Timing Setup (Autotiming)**

BPM low-level timing gates never completely clean, including DX
Required manual parasitic setup, expert activity
1-bunch setup of 1+ day reduces in parallel to minutes
Autotiming will allow routine reset of DX BPM timing
To Do: *Design, DSP/ADO code, single-bunch setup in each ring*
To Do: *ADO code to support trigger delay logging*

- **Bunch/Bucket Select**

Improvised solutions for e^- cloud/impedance measures
Should have single “bunch select” parameter in manager
To Do: *ADO/manager code to support global timing settings*